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ABSTRACT

Educators can help themselves and others improve their creative thinking. Before the improvement can begin, there must be a common understanding of what creativity is. Edward Land described creativity as the sudden cessation of stupidity. Several barriers to creative thinking include boredom, lack of challenge, believing expertise in a particular area is necessary for creativity in that field, and not realizing that creativity involves hard work. Four steps to help improve creative thinking include: (1) preparation--in order to get a good idea it is necessary to have several ideas; (2) incubation--letting the subconscious do the work; (3) illumination--"Eureka, I've got it!"; and (4) verification--filling in the details and following a linear plan. Ideas must be translated into a plan of action in order for change to occur. Finally, creativity training must be everyone's responsibility. (KM)

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CREATIVE PROBLEM-SOLVING

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The scenario: It's 8:30 a.m., coffee cup in hand, you hear the echo of the ever-popular "What's new?" question approaching your office. This time, you tell yourself, you are going to be prepared to deliver a well-thought original answer to the boss's inquiry. But, wait, what happens? Oh no! You guessed it. The word "Nothing" seems to fall from your lips. And from the 8 o'clock hour on you seem to be feeling especially unimaginative.

This scenario is all too common in industry today. While there has been an increase in creativity training to the tune of 540% in the last four years, that ends up still only being about 25% of companies with more than 100 employees. Recently creativity seminars have appeared at companies like Frito-Lay, Inc., DuPont and Texas Instruments (TI) as executives have jumped on the stroller (it can't be referred to as a bandwagon yet because the training movement is so small). I'd like to propose in this paper how we, as trainers, can help ourselves and other individuals improve their creative thinking in the 1990's.

What is Creativity?

The inventor of the Polaroid camera, Dr. Edward Land described creativity as "the sudden cessation of stupidity." If we agree with this simplified definition, we would also have to admit that we all need to regress to that playful time of our lives--childhood. One study of creativity showed that only 2% of all adults are truly creative. Ten percent of seven year-olds and some 90% of all five year-olds are creative.

The primary cause of this decline might surprise you, but I'll give you a hint. Between the ages of 5-7 years of age we lose the bulk of our creativity, which is about 40%. What happens at age five? Well, we begin attending school where between 2000 to 2500 tests will be administered particularly during high school and college alone, asking us to give the "right answer". We learn to forget that many problems have multiple "right" answers.

Unfortunately, most adults tend to adhere to a "Streetcar Philosophy". For example, if you needed a get-away vehicle after robbing a bank, I'd doubt that you would look for a police car. Yet when it comes to thinking, we would rather ride the predictable streetcar and do what is expected (and eventually get caught) than escape driving in a V-8 powered Corvette.

Let's take a simple test to determine our level of creativity for if we are going to instruct managers on how to improve creative thinking, we must first be innovative ourselves. Problem: Their is four errers in this sentence. Can you find them? Sounds easy enough! There are two spelling mistakes; their and errers. The third error is a grammar mistake using "is"

instead of "our". The final mistake is that there are only three errors in this sentence. HA! I bet I got a few of you.

Do you have "Spectatoritis"?

Painter Stanley A. Czurles believes we suffer from "spectatoritis" which leads to increased feelings of sterility, lack of satisfaction and apathy. Symptoms include bouts of boredom, lack of challenge, too much time, pessimism, shallow success, and temporary enjoyment. The opposite side of the coin, the Creative Doer, is involved in self-enriching activities, is flexible, achieves new goals, and maintains a youthful spirit.

It is interesting to note that we spend 60% of our time thinking about the future, another 20% reminicing about the past and the remaining 20% living in the present. Remember we are called "human beings" not "human has-beens".

It's Not My Job

Another block to creative thinking is assuming that we are not skilled enough in a particular area, thus we do not have the expertise necessary to be creative. Remember that the ballpoint pen was invented by a sculptor and the parking meter by a journalist. A musician developed Kodachrome film while the automatic telephone was produced by an undertaker. So, as Rosebeth Moss Kanter told us in ChangeMasters, it seems that being creative is everyone's responsibility.

Creativity is Hard Work

Michelangelo once said, "If people knew how hard I worked to get my mastery, it wouldn't seem so wonderful after all." We often believe in the "a-ha" factor of creativity where we will be

hit by some miraculous idea that will change the course of our lives and the world around us. Some inventions that did tremendously affect our lives took many years to perfect. For instance, the ball point sitting on your desk right now took 7 years to invent. And that "great" instant coffee you slurped down this morning required 22 years of planning. Each time you reach for your zipper today know that it took 30 years to refine. No one ever told us that being creative was going to be easy. Thomas Edison reported that, "Genius is one percent inspiration and ninety nine perspiration."

Quack, Quack, Quack

In one of Dr. Wayne Dyer's presentations, he shares the story of the ducks and eagles. An analogy may be useful to describe this concept. Imagine what you would see if you were following a self-appointed "head duck". Ugh, the site would not be too attractive. Yet, now imagine the view as the eagle soars above. Ahh, much nicer. If we want to be truly creative, we must stop following around like ducks and pursue the less restrictive course of the eagle.

The Swatch company proves to be an interesting example for they changed the notion of the way we think about watches. Instead of wanting a timepiece that is also fashionable, Swatch gave us a fashionable piece of jewelry that also tells time. By acting as eagles, Swatch in 1983, their first year, made $3 million. In 1986, Swatch was up to $300 million.

Constipated Thinking

The best remedy for constipated thinking is to take a mental laxative. One author provides us with a 4 step process.

1) Preparation: Creativity favors the prepared mind. The only way to get a good idea is to have lots of ideas.

2) Incubation: Letting the subconscious do the work.

3) Illumination: Eureka, I've got it!

4) Verification: Filling in the details and following a linear plan. Ideas must be translated into a plan of action for change to occur.

Creativity training is everyone's responsbility or we may discover we agree with David Campbell's quotation. "Age 7--Why? Age 17--Why not? Age 37--Because."

Creative Problem-Solving Workshop

Scenario: Boss asks "What's New?" "Oh Nothing" is your response.

Workshop is developed to:
1) Define and give advantages of creative thinking
2) Eliminate mental blocks that hinder creative thinking
3) Discover ways to enhance our creative thinking

Situation: Park ranger had problem with people speeding through the camping and museum center. His answer was to install "speed bumps". This did not solve the problem.
He re-phrased the question, "Why do people speed?
Answer: to get where the action is. (the campsite was not very interesting to look at)
He brought in beautiful ground birds and ducks to roam around. People slowed down to look at the birds and also not to run over them.

Definition: Dr. Edward Land (Polaroid camera inventor) defined creativity as: "the cessation of stupidity"

Did you know that the brain waves of people watching TV are similar to people who are comatose? Television may be a detriment to our creative thinking.

Transparency: Doodle #1: What do you see?
upside down balloon
hair-sprayed pigtail
sperm cell in a culture dish
a firecracker with a long fuse
an orange with an umbilical cord
a baby who got frightened

Alfred N. Whitehead: "Almost all really new ideas have a certain aspect of foolishness when they are first produced."

Children and Creativity: One study of creativity showed that 90% of all 5 year olds are creative with only 10% of all 7 year olds being creative.
Between the years of 5 and 7 we lose most of our creativity.

Can anyone guess why? We enter school for the first time. Since high school and college we will have taken between 2000 and 2500 tests which ask us to give the "right answer." From that experience about 2% of all adults being truly creative.

We are victims of "SPECTATORITIS": (Painter Stanley A. Czurles) It leads to increased feelings of sterility, lack of satisfaction and apathy.

Symptoms: of the Spectator:
Kills time
Is an observer
Prone to boredom
Pessimistic
Swept into activities with no deep challenge
Has only temporary enjoyment and success

Symptoms: of the Creative Doer:
Uses time to develop self
Is involved
Stimulated by challenging interests
Flexible and uses potential
Aspires to achieve more goals
Enjoys an extended youthful spirit

Creative Training: 25% of all organizations employing more than 100 people offer creativity training, which is a 540% increase in four years. Examples include Frito-Lay, Du Pont and Texas Instruments, Inc.

BLOCKS TO CREATIVE THINKING:

1) THE RIGHT ANSWER: Draw a square and divide into 4 equal parts. (come up with as many possibilities)

RFA Attitude: Ready, Fire, Aim. The average person tends to Ready, Aim, Aim, Aim, (ex) Choosing a job, house, spouse...did you look at every available option?

2) THAT'S NOT LOGICAL: What makes something logical? Why do some of you have neckties on?
Story: Bill Bowerman was eating a waffle his wife fixed him. He stared at it and something clicked. He took the waffle iron into his garage, ruined it making prototypes and transposed the waffle pattern into a good running shoe--the NIKE. Does this story sound logical to you?

E. Paul Torrance: "It takes courage to be creative, just as soon as you have a new idea, you're in the minority of one."

3) BREAK A RULE: Do not follow rules that say, "I can't.." or "We won't.." or "We never.." Breaking rules require us to take risks.
HOW TO SPOT A SMART RISK:
(if you agree with a least 5 of the following, the risk is probably worth taking)

1) It's fun
2) It makes you happy
3) You researched it for months
4) The timing is right

5) You studied it as objectively as you could
6) Your family likes the idea
7) It's worth the risk
8) It's worth the effort
9) It makes sense
10) It fits in with the rest of your life

4) BE PRACTICAL: We fall victim to "functional fixedness" We have the tendency to see an object only as it is commonly used. (Transparency: Brainstorming cartoon)

Story: A heavy truck once became lodged under an overpass. Police were trying to get it free. A crowd gathered. Answers were cut off the top of the truck, dismantle the bridge, use explosives, etc. A little boy stepped forward and asked, "What if they let the air out of the tires?" Nobody thought of the obvious.

5) AVOID AMBIGUITY: We tend to dislike the unknown: We like rituals and habits. Some are necessary such as tying our shoes, eating--these activities do not require much from our consciousness; lets us live our complicated lives. Habits also can stifle creativity and stand in opposition to change: (getting out of bed, driving to work, dinner conversation, small talk...)

Exercise: Subtraction: There are at least two different approaches:

Approach #1: If you add 10 in the first step, you <u>decrease</u> upper number by one. If lower is numerically larger than upper, add 10 to upper and then subtract.

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 572
-145
 427
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Approach #2: If 10 was added in the first step, <u>increase</u> lower number by one. If lower number is numerically larger than upper, add 10 to upper and then subtract.

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 572
-145
 427
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How does it feel to work the problem differently?

Example problems:

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 392        831
-174       -264
 218        567
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6) TO ERROR IS WRONG: Must learn that mistakes are OK.
Ex) According to a recent study, 75% of research and development money is totally wasted. The resulting products never made a profit. Industry and business in the U.S. spend at least $25 billion a year researching and developing new products.

To be creative takes time:
Antibiotics took 30 years to develop
Zipper took 30 years
"instant" coffee took 22 years
Ball point pen--7 years

Exercise: Problem: Their is four errers in this sentence. Can you find them?
Answer: Spelling: their and errers
Grammar: is
Change level: the fourth error is that there are only 3 errors in the sentence.

7) PLAY IS FRIVILOUS: As adults we forget how fun it is to play (Transparency : Cathy Cartoon)

Exercise: Thumbprint drawings: Complete some of the simple figures. The typical responses are very simple and basic. The creative people had a tendency towards complexity, elaboration, whimsy and imaginativenss.

8) THAT'S NOT MY JOB:
Story: Einstein devised special daydreaming imagination games, which he applied to his knowledge of physics. He would imagine himself riding through the universe on a sunbeam, and this laid the foundation for his theory of relativity.

ex) Parking meter invented by a journalist
Ball point pen by a sculptor
Kodachrome film was developed by a musician
Automatic telephone was developed by an undertaker
Pneumatic tire was developed by a veterinarian

9) DON'T BE FOOLISH: Must be willing to admit: "This may be an odd idea but..."

Ex) A man from Corning, New York was playing with this chemical in a container in his household oven. He forgot about it and later when he returned the chemical turned white and kept its shape and held heat. Thus the making of CorningWare.
More examples)--Velcro was invented after a Swiss engineer studied the clinging burdock burr.
Modern radar was patterned after the bat
Hyperdermic needle was patterned after the fangs of a rattlesnake

Dreams: (transparency: "Silly dream") We spend about 1/3 of our lives in bed. In a normal life span that is 210,240 hours.
Story: Elias Howe, the inventor of the sewing machine did not know how to attach the thread to the needle. He dreamed that he was about to be killed by cannibals with deadly spears if he did

not complete his invention in 24 hours. The spears had small holes in the tips. When he awoke, he put a hole at the end of the needle.

10) I'M NOT CREATIVE: The self-fulfilling prophecy:
We must Resist the 6 C's:
Enemies of Sustained Excellence

1) Comfort (too relaxed)
2) Complacency (we'll do it later)
3) Contented (why should we do it another way)
4) Conceit (there are no other ways, my way is right)
5) Custom (we have always done it this way)
6) Change resistance (change is scary)

Kalidescopic Thinking: (Rosebeth Moss Kanter: ChangeMasters): The information is not new, but the organization of this material is different. We should look at things in another perspective.

Example) Transparency: Doodle #2: (Try it again!)
Battery
Abe Lincoln taking a shower
Elephant balancing act
Smokestack
Midget puppet in a stovetop hat
Abe Lincoln in a voting booth
Elephant with a splinter in its foot

WAYS TO PROMOTE CREATIVE THINKING:

1) Willing Suspension of Disbelief: When we go to the movies to watch Indian Jones, Rambo or James Bond we escape from reality. We realize that it cannot happen, but it is OK. We should adopt this style fo thinking when we are involved in creative thinking.

2) Love Ourselves:
Recent studies of the brain have shown that it requires 4 basic foods:
1) Nutrition
2) Oxygen
3) Information
4) Love and affection
(Why Love? It is included because your brain, not your heart, is the center of your emotions, and if it is satisfied in the area of love, most other aspects of your self-management will automatically slot neatly into place.)

3) Act like Eagles not Ducks: (Dr. Wayne Dyer)

Ducks are never seen by themselves; they always travel in a line and do not have a good view. They always say "Quack, quack, quack (administrative quack)

Eagles are usually seen alone and they sore above everyone else. Eagles step out of line.

4) Understand the steps involved in Creative Problem-Solving: Constipated Thinking: getting mentally stuck for new ideas. Must take a mental laxative.

1) Preparation: Concentrate on what is unique about the problem. Define the question differently.

EX) Landing small airplane with locked landing gear. Committee formed and options included: foam the runway; pull up wheels and land on belly of plane; land on the beach; eject from the plane.

One man said he would drive his sun-roofed car at 90 mph and pull the wheel down. Instead of defining the problem as "How to get the plane down." He phrased it "How can I get up to the plane."

2) Incubation: Let the subconscious do the work. Let time work for you. Get a change of scenery. Many people do not like to take a break because of feeling that they will nip their understanding in the bud. However, the brain continues to work on the problem without us even knowing it.

3) Illumination: The "A-Ha" factor. Ideas may occur to you in the car, the shower or even while sleeping.

4) Verification: Follow-thru. Developing an action plan.

David Campbell: "Age 7--Why? Age 17--Why Not? Age 37--Because."